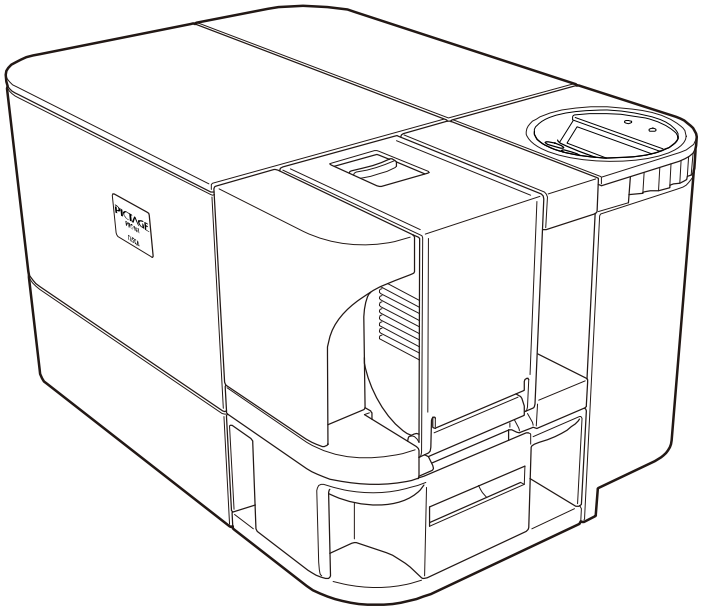
PR-C101
PR-C101M

Service Manual



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□ Wiring diagram
□ Layout plan of electric parts
□ Parts list
□ Exploded view

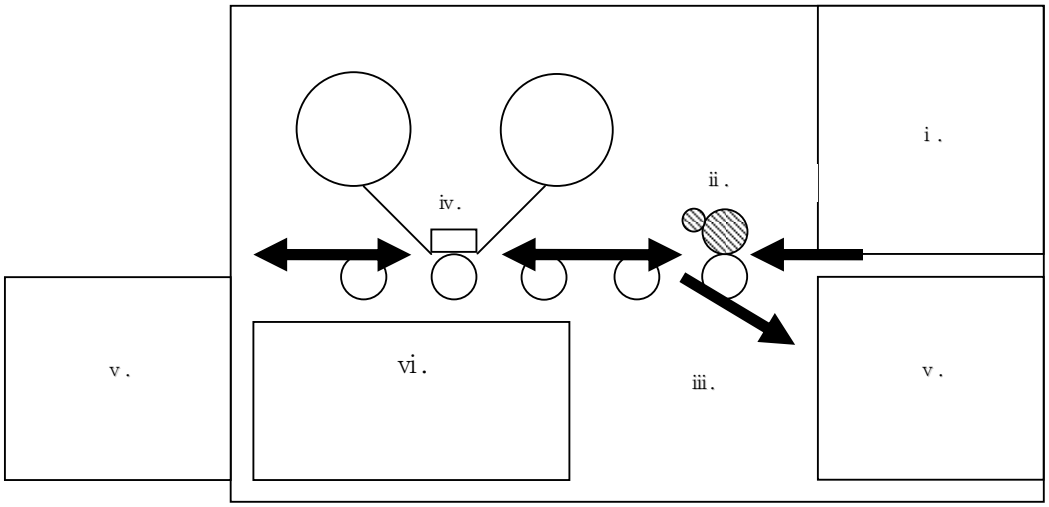
□ **Overview of the Device**

『 Basic Specification 』

Please refer to “PR-C101/PR-C101M Operation Guide”

□ **Description of Mechanism**

This device is composed of Card feeding part, Path switching mechanism, Printing part, Card ejection part, Magnetic encoder, Contactless card reader/writer。



ⅰ. Card feeding part

Cards are loaded with face up. 100pcs of 0.76mm cards can be loaded. By incorporating the multi-function card cassette, the cards can be loaded without removing the cassette. Card separation can be made without adjusting the card thickness. Card can be manually inserted from manual feed slot.

ⅱ. Cleaning part

Cleaning part consists of cleaning roller and cleaning assist roller. Dirt and dust on the card is cleaned by the cleaning roller and, at the same time, dirt and dust on the cleaning roller is cleaned by the cleaning assist roller.

ⅲ.Path switching part

When the card is fed, the path switching part is kept in horizontal direction. When discharging the card to the card ejection part 1, the direction is changed in the slanting direction and transports the card.

ⅳ.Printing part

The printing part has a thermal head of 300dpi which is positioned above the face of the card. Printing is made in the heat transfer system, transferring the ink from the ribbon while the card is moving.

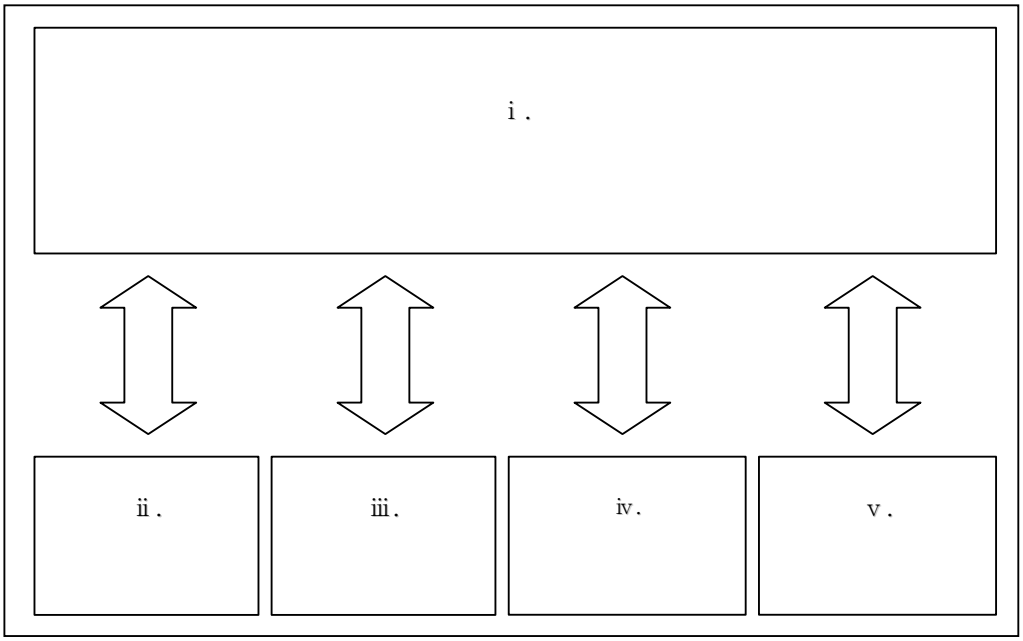
v. Card ejection part
There are two card ejection parts. Card ejection part 1 is located below the card feeding part and card ejection part 2 is located at the opposite side. The card exit can be optionally set to separate the normally printed card and error card.

vi. Magnetic encoder (PR-C101M only) ・Contactless IC reader/writer mounting area
Magnetic encoder is mounted in PR-C101M. Consequently, contactless IC reader/writer can not be mounted on this model. The contactless IC reader/writer can be mounted to PR-C101.

□Description of electric functions

『 Composition of electric parts 』

Block diagram of the printer unit



The printer unit is controlled and driven by the following parts:

i .Main PCB
Main PCB receives the command and data from the host computer and controls the whole printer unit. It has the connector for USB2.0 and the connector for optional units.

ii .PCB of operation panel
This is composed of LCD, LED and push button switches, and controlled by the main PCB.

iii .Power supply unit
The unit supplies DC24V and DC5V to the printer and optional units.

iv. Print head
The print head supplies heat energy for printing the image, characters and protective layer.

v .Mechanical part
Mechanical part is composed with motors and sensors to transport and print the card.

『 List of actuators 』

＜Mechanical parts of input system＞

Symbol	Composition	Function
SN1	Optical sensor	Detection of card empty
SN2	Optical sensor	Detection of the card (feed and discharge)
SN3	Optical sensor	Detection of switching of transportation
SN4	Optical sensor	Detection of the edge of the card (printing part)
SN5	Optical sensor	Detection of the ribbon transport length (supply axis)
SN6	Optical sensor	Detection of the ribbon transport length (take up axis)
SN7	Optical sensor	Detection of the beginning of the ribbon
SN8	Optical sensor	Detection of existence of the ribbon cartridge
SN10	Optical sensor	Detection of print head position
MS1	Micro swicth	Detection of open/close of the front access cover (interlocking function)

＜Mechanical part of output syste＞

Symbol	Composition	Function
DM1	DC motor	Drives the head elevation mechanism
DM2	DC motor	Drives the ribbon take up mechanism
PM1	Pulse motor	Drives paper supply motor.
PM2	Pulse motor	Drives card transport switching mechanism
PM3	Pulse motor	Drives the print cart transport mechanism
FAN1	Fan motor	Cooling of the power supply PCB
FAN2	Fan motor	Cooling of the print head
FAN3	Fan motor	Cooling of the whole printer unit
SOL1	Solenoid	Switching and holding of the cleaning tape mechanism.

MEMO

□ **Overview**

Printer status is displayed on the operation panel on the top of the printer. Settings of the printer, such as card re-issuance, adjustment of the printer and checking of the operation can be made from the operation panel.

□ **Explanation of the operation panel**

Please refer to the “PR-C101/PR-C101M Operation Guide”.

□ **Mode of the operation panel**

Operation panel of this printer has 3 types of operation modes.

『 Normal mode 』

Status of the printer such as “error” is displayed while printing. When the printer is started, it becomes this mode automatically.
Regarding the function and the operation, please refer to the “PR-C101/PR-C101M Operation Guide”

『 User mode 』

Set the function of the printer such as reissuing of the card. Also, displays the information such as the version of the firmware etc.
Regarding the function and the operation, please refer to the “PR-C101/PR-C101M Operation Guide”

『 Service mode 』

Individual printer adjustment such as print density etc is made in this mode. This mode is also used for display of the sensor status and analysis of the troubles such as driving of the actuators.
This paragraph describes the details of this mode.

『 Operation of Service Mode 』

Service mode is composed of plural number of menus and various functions are allocated to each menu such as the change and display of adjustment values of the printer, individual action of the actuator and test pattern printing and display of the error history etc.
To perform the function of each menu, switch to the Service Mode and to the desired menu by the steps described below.

1. Entering into Service Mode
   Operate the key of the operation panel in the following steps:
   1) Finish the other mode and switch to the Normal Mode.
   2) Press and keep the MENU key while the printer is in waiting or error stop. The display will change to “Input Command”.
   3) Holding the MENU key pressed, press CLEAR key and EXE key alternately at least 8 times. Release the MENU key when the display changes to “Service Mode”.
      The moving mark to the lower layer “>>” is shown at the right end of the LCD.
      （Display “Service Mode >>”）
   4) Press EXE key to display first menu.

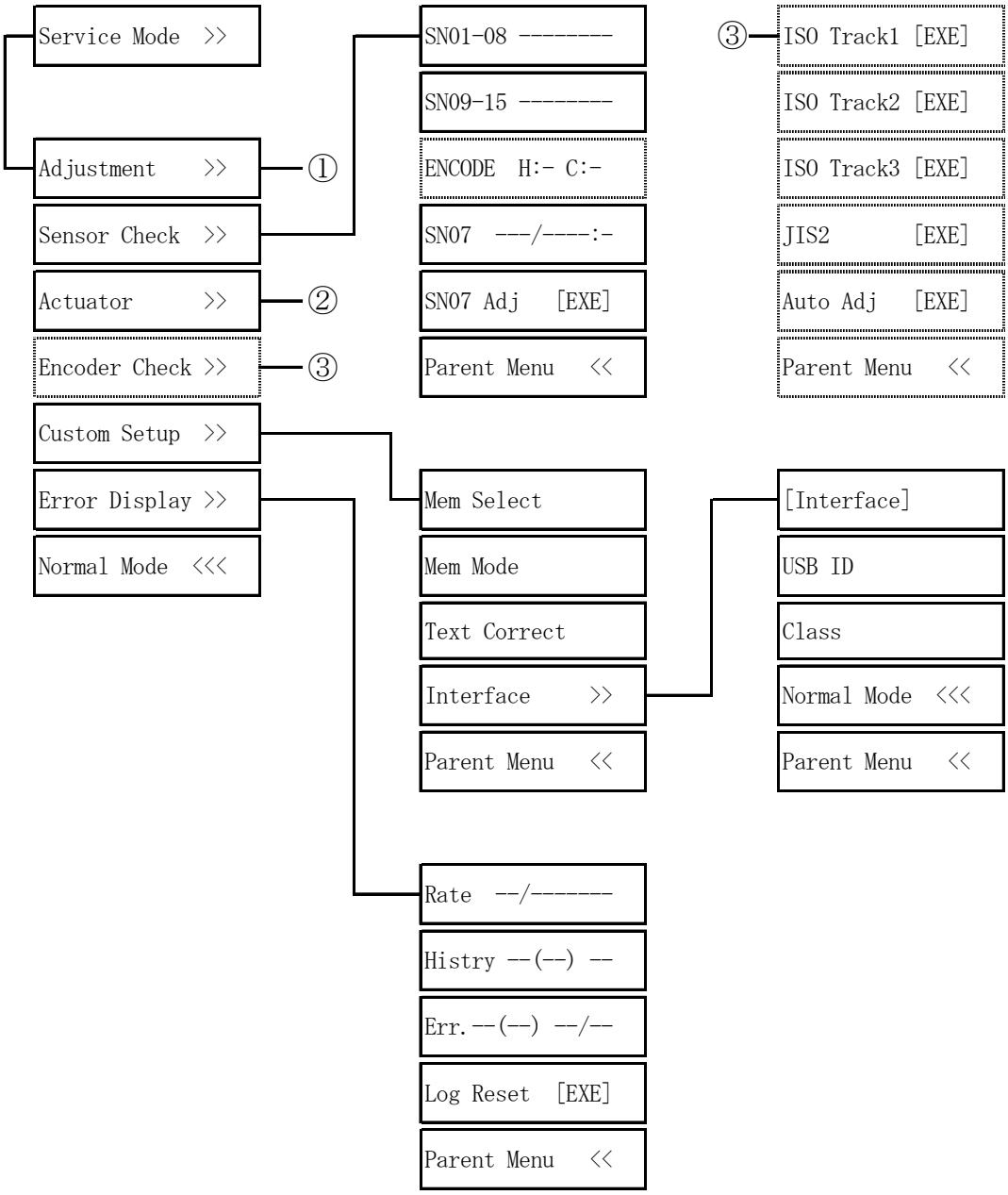
2. Switching the menu
   Service Mode is composed of the tree structure of menus of categorized functions. Switching of the menus in the same layer and moving to the other layer is made by operation of the key. Please refer to “Composition of the menu of Service Mode” regarding the composition and categorization of the menu.

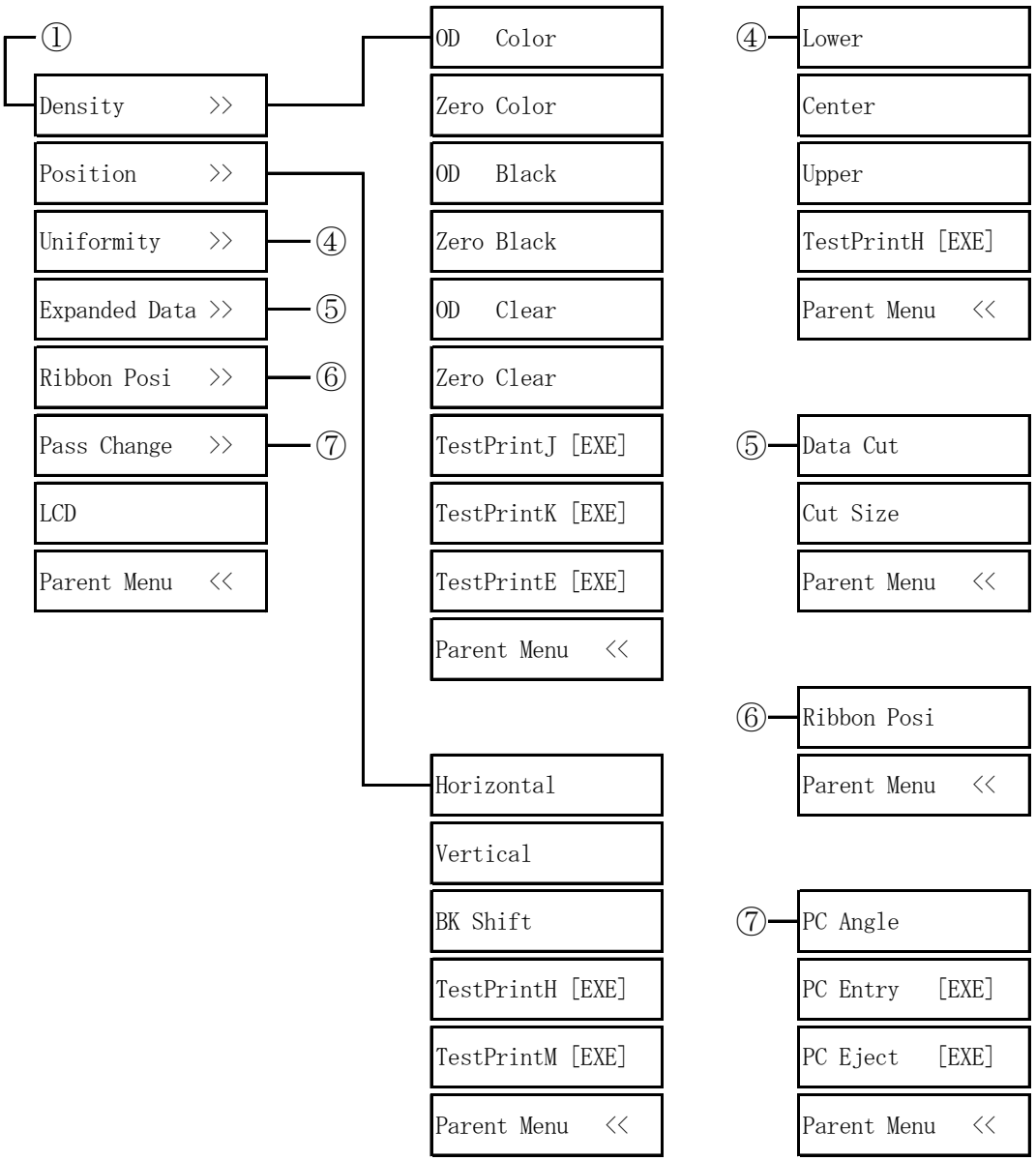
   1) Switching menu in the same layer
      Every time the MENU key is pressed, the menu changes. Pressing at the last menu will come back to the first menu in loop.
   2) Moving to the lower layer
      Press the EXE key when the menu with >> mark at the right end to move to the lower layer.
   3) Moving to upper layer
      To move one layer up from the present layer, press EXE key at the “Parent Menu <<” in the same layer.
   4) Finishing the Service Mode (to return to Normal Mode）
      Select the “Normal Mode <<” in the uppermost layer and press EXE key to finish Service Mode and return to Normal Mode.
      Service Mode can also be finished by pressing CLEAR key at “Parent Menu <<” at each lower layer.

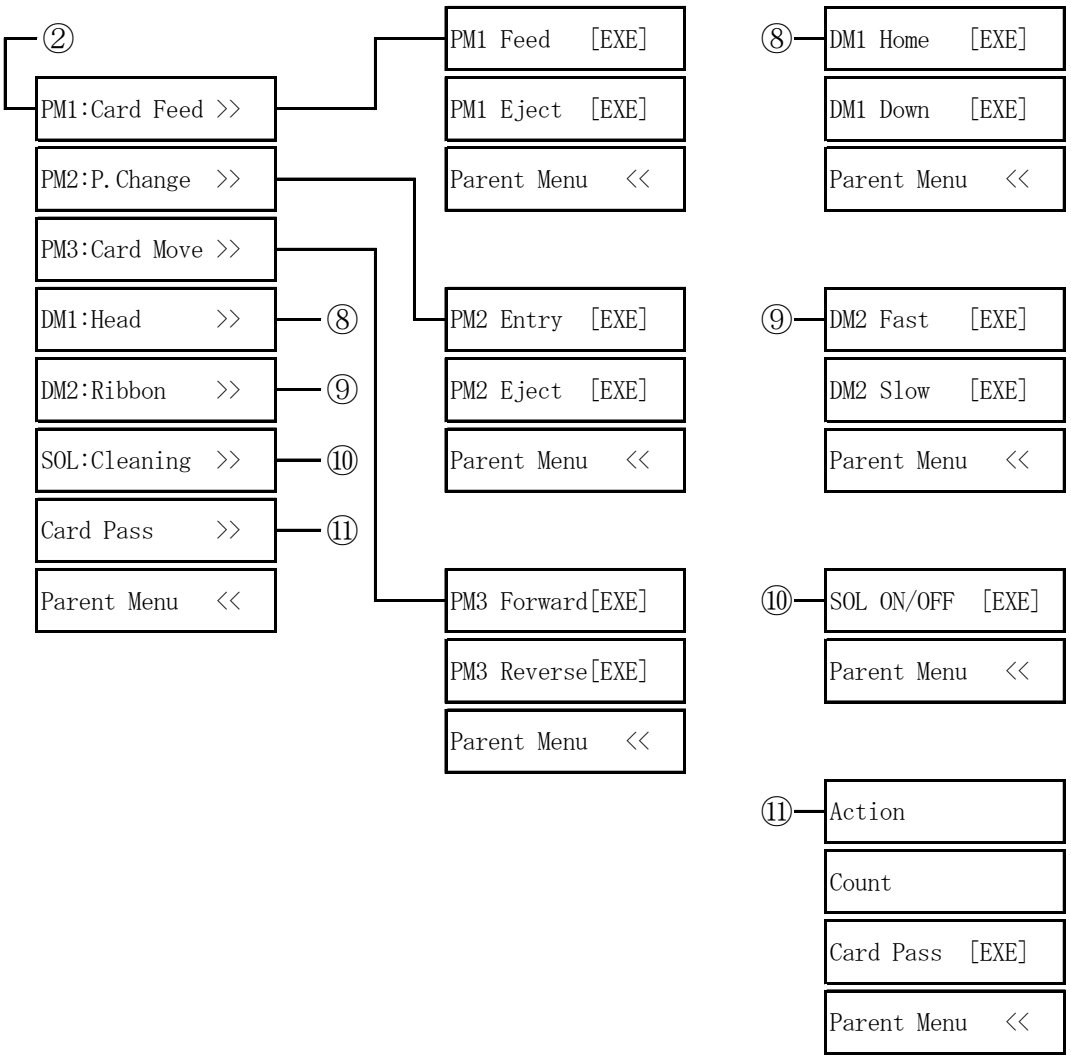
3.Execution of Menu
   Regarding the function and operation of each menu, please refer to “Explanation of Functions of Service Mode”.

□ **Composition of Service Mode menu**

Composition of the menu of Service Mode is shown below. The menu shown with broken line is for PR-C101M only.




①
Density >>
Position >>
Uniformity >>
Expanded Data >>
Ribbon Posi >>
Pass Change >>
LCD
Parent Menu <<
④
⑤
⑥
⑦
OD Color
Zero Color
OD Black
Zero Black
OD Clear
Zero Clear
TestPrintJ [EXE]
TestPrintK [EXE]
TestPrintE [EXE]
Parent Menu <<
Horizontal
Vertical
BK Shift
TestPrintH [EXE]
TestPrintM [EXE]
Parent Menu <<
④ Lower
Center
Upper
TestPrintH [EXE]
Parent Menu <<
⑤ Data Cut
Cut Size
Parent Menu <<
⑥ Ribbon Posi
Parent Menu <<
⑦ PC Angle
PC Entry [EXE]
PC Eject [EXE]
Parent Menu <<


②
PM1:Card Feed >>
PM2:P.Change >>
PM3:Card Move >>
DM1:Head >>
DM2:Ribbon >>
SOL:Cleaning >>
Card Pass >>
Parent Menu <<
⑧
⑨
⑩
⑪
PM1 Feed [EXE]
PM1 Eject [EXE]
Parent Menu <<
PM2 Entry [EXE]
PM2 Eject [EXE]
Parent Menu <<
PM3 Forward[EXE]
PM3 Reverse[EXE]
Parent Menu <<
⑧ DM1 Home [EXE]
DM1 Down [EXE]
Parent Menu <<
⑨ DM2 Fast [EXE]
DM2 Slow [EXE]
Parent Menu <<
⑩ SOL ON/OFF [EXE]
Parent Menu <<
⑪ Action
Count
Card Pass [EXE]
Parent Menu <<

□ **Explanation of Functions of Service Mode**

【Adjustment（printer adjustment related menus）】

This menu is for adjustment of print conditions such as maximum density and print position etc.。

Note: Do not change the adjustment values excessively as it may cause troubles.

1. Applied Energy Adjustment Menu (Adjustment >> Density >>)

【OD Color XXX】Applied energy adjustment for color dye printing.
【OD Black XXX】Applied energy adjustment for melt black printing.
【OD Clear XXX】Applied energy adjustment for protective layer printing.
CLEAR : Decreasing value（reduce applied energy/lower limit -14）
EXE : Increasing value（increase applied energy/upper limit +14）

2. Preheat Energy Adjustment Menu (Adjustment >> Density >>)

【Zero Color XXX】Adjustment of preheat energy for color dye printing.
【Zero Black XXX】Adjustment of preheat energy for melt black printing.
【Zero Clear XXX】Adjustment of preheat energy for protective layer printing.
CLEAR : Decrease value（reduce preheat energy/lower limit -14）
EXE : Increase value（increase preheat energy/upper limit +14）

Note: This adjustment is made in such case as color is printed on the area where there is no effective data (white color) or insufficient coloring where gradation is low due to the improper material of the card.

3. Test Pattern J Printing Menu (Adjustment >> Density >>)

【TestPrintJ [EXE]】Printing of test pattern to check applied energy for color printing.
CLEAR : Printer error release (when error only)
EXE : Start of test pattern printing

Print the black/white pattern to check print condition of maximum density (RGB=O/O/O)
Black part is printed in color printing (YMC overlap printing).
If print defective of circular arc appears in the print result, decrease the applied energy for color printing (OD Color) using the “Applied Energy Adjustment Menu” in the same layer.

4. Test Pattern K Printing Menu (Adjustment >> Density >>)

【TestPrintK [EXE]】Printing of test pattern to check preheating energy for color printing.
CLEAR : Printer error release (when error only)
EXE : Start of the test pattern

Print the gradation pattern to check the low gradation and white color (0 gradation).
Gradation part is printed in color printing.
If insufficient color in low gradation or color appears in the area of white (0 gradation) in the print result, adjust the preheat energy for color printing (Zero Color) using Preheat Energy Adjustment Menu in the same layer.

5.Test Pattern E Print Menu (Adjustment >> Density >>)

【TestPrintE [EXE]】Prints checking pattern of applied energy for black printing.

CLEAR : Release printer error (when error only)

EXE : Start printing of test pattern

The printer prints the tile pattern to check the printing condition of melt black. Black part is printed with the melt black.
In the result of the test print, if some part of the line is scratched or the space between the lines is bridged, adjust the applied energy (OD Black) for the melt black printing using the applied energy adjustment menu in the same layer.

6. Print position (horizontal) adjustment value (Adjustment >> Position >>)

【Horizontal XXX】Adjustment of horizontal print position (1 adjustment value = 0.085mm)

CLEAR : Decrease value（move the print position to left/lower limit –50）

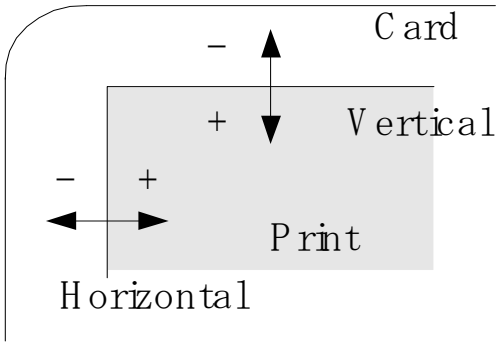
EXE : Increase value（move the print position to right/upper limit +50）

7. Print position (Vertical) adjustment value (Adjustment >> Position >>)

【Vertical XXX】 Adjustment of vertical print position (Adjustment value 1=0.085mm)

CLEAR : Decrease value（move print position upward / lower limit –16）

EXE : Increase value（move print position downward / upper limit +16）



8. Print Position of Image and Character Adjustment Menu (Adjustment >> Position >>)

【BK Shift XXX】 Adjustment of transport amount to the print start position (Adjustment value 1 = 0.1%)

CLEAR : Decrease value（Reduce transport amount to the print start position / lower limit –50）

EXE : Increase of value（Increase transport amount to the print start position / upper limit +50）

Note) This adjustment is used if there is a position shift in overlay printing of color image and black character when printing the data which has different print area (print start positions) between color image and black characters.
It is not for adjustment of the print start position itself.

9. Test Pattern H Print Menu (Adjustment >> Position >>)

【TestPrintH [EXE]】Printing of print position checking pattern

CLEAR : Release printer error (when error only)

EXE : Start test pattern printing

The printer prints the pattern in pink color to check the relative print position of the image data to the card. The part in blue and pink are color printing. The pattern is common with the density uniformity checking. There are gaps (white color) of 0.5mm between each edges of the printed card and the each edges of the printed images area, if the position is correct.
If the position is deviated, adjust the print position with the Print Position Adjustment Menu (Horizontal/Vertical) in the same layer.

10. Test Pattern M Print Menu (Adjustment >> Position >>)

【TestPrintM [EXE]】Printing the pattern to check the shift of image and character print postion.

CLEAR : Release of printer error (when error only)

EXE : Start printing test pattern

Pattern is printed in whole area in gray color to check the shift of image and character overlay printing. Gray area is in color print and the black vertical line is in melt black print. With the correct print condition, the black vertical line must be within the limit of the vertical white line at about 6mm from the right edge of the printed card. If there is shift, adjust the position of the black line with the Image and Character Print Position Adjustment Menu (BK shift) in the same layer.

Note) The shape of the right edge of the test pattern is not used for this adjustment.

Note) Amount of the shift is affected by the pattern to be printed. If there is a shift in the actually issued card, adjust the position with the actual card.

11. Density Uniformity Adjustment Menu (Adjustment >> Uniformity >>)

【Lower XXX】 Density adjustment of upper part of the card

【Center XXX】 Density adjustment of center part of the card

【Upper XXX】 Density adjustment of lower part of the card

CLEAR : Decrease of value（Increase of density of selected part / Lower limit ±0）

EXE : Increase of value（Decrease of density of selected part / Upper limit +9）

Note) The higher value makes the printed color lighter.

Note) Density unevenness in the card transport direction (left and right) can not be adjusted with this method.

12. Test Pattern H Printing Menu (Adjustment >> Uniformity >>)

【TestPrintH [EXE]】Printing the test pattern to check density uniformity in vertical direction

CLEAR : Release of printer error (when error only)

EXE : Start printing the test pattern

Pattern is printed in pink color to check the uniformity of print density in vertical direction. The part printed in blue and pink is color printing. It is same pattern as the print position checking. Adjust by the Density Uniformity Adjustment Menu in the same layer so that the density of upper, center and lower part in the same column of the printed card become uniform.

13. Card Tail edge Print Designation Menu (Adjustment >> Expanded Data >>)

【Data Cut XXX】

CLEAR : No function

EXE : Switching of setting (Stop data output Permit (ON) / Prohibit (OFF))

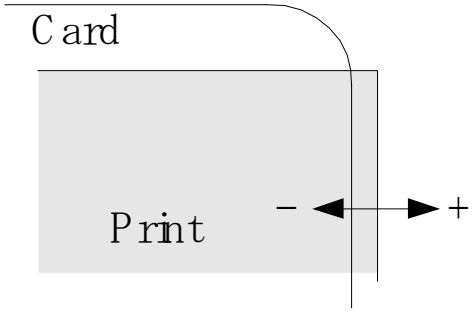
Note) There is a case that the image is expanded and the print area may protrude from the end of the card (right edge). Ribbon may be broken if printing is continued in such condition. Therefore, set to ON (permit to stop output of data) if there is no inconvenience.

14. Card End Position Adjustment Menu (Adjustment >> Expanded Data >>)

【Cut Size XXX】Adjustment of cutting position of data
(Adjustment value 1 = 0.085mm)

CLEAR : Decrease of value（Move cutting position to left / Lower limit –10）
EXE : Increase of value（Move cutting position to right / Upper limit +10）

Note) Amount of expansion of the image may be different by the print data. Set the value with some margin to frontward (minus side).
Note) There is no test pattern for this adjustment. Make adjustment according to the printing of actual layout.

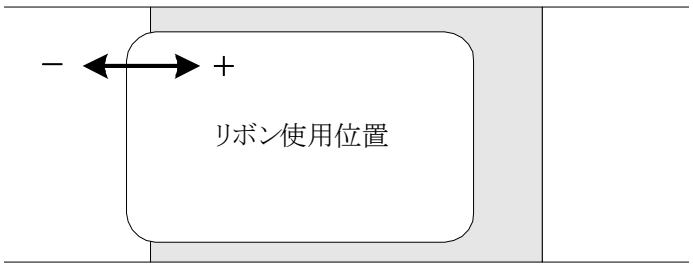


15. Ribbon Start Position Adjustment Menu (Adjustment >> Ribbon Posi >>)

【Ribbon Posi XXX】Adjustment of ribbon panel use position
(Adjustment value 1 = 0.1mm)

CLEAR : Decrease of value（Move use position of ribbon panel to left / Lower limit –50）
EXE : Increase of value（Move use position of ribbon panel to right / Upper limit +50）

Note) Adjust the position if the ribbon use position extends off the panel and adversely affect the printing.
Note) There is no test pattern for this adjustment. Adjust according to the condition of the trouble.



16. Path Change Angle Adjustment Menu (Adjustment >> Pass Change >>)

【PC Angle XXX】Adjustment of path change angle (Adjustment value 1 = 0.3)

CLEAR : Decrease of value（Move stop angle of PC to lower right / Adjustment value 1 = –3）
EXE : Increase of value（Move stop angle of PC to upper right / Adjustment value 1 = +3）

Note) Incorrect adjustment may cause card jam trouble.

17. Path Change Angle Check Menu (Adjustment >> Pass Change >>)
【PC Entry [EXE]】Move path change to entry position (horizontal).
【PC Eject [EXE]】Move path change to eject position (lower right).
CLEAR : Interrupt operation
EXE : Start operation (move to the designated position)

Move the path change to designated position. Use this as a rough indicator for adjustment of path change angle in the same layer.

18. LCD Display Adjustment Menu (Adjustment >>)
【LCD XXX】Adjustment of brightness of LCD
CLEAR : Decrease of value（Darken the LCD / Lower limit –3）
EXE : Increase of value（Brighten the LCD / Upper limit +3）
【Sensor Check（Checking the sensor status・adjustment related menus）】
Check the level (ON/OFF) of each sensor and adjust the sensitivity of ribbon sensor

19. Sensor Level Display Menu (Sensor Check >>)
【SN01-08 XXXXXXXX】Display level of sensor 01 ~ 08
【SN09-15 XXXXXXX 】Display level of sensor 09 ~ 15
【ENCODE H:- C:-
Display the level of magnetic encoder
(Head position detection (H) / Card position detection (C))
CLEAR : No function
EXE : No function

Note) “1” is displayed if light blocking material (card or clock plate) exists on the sensor, and “0” is displayed if not.

20. Ribbon Sensor Analog Display Manu (Sensor Check >>)
【SN07 aaa/bbbb:c】Display of amount of light emission /reception of the ribbon mark detection sensor SN07.
aaa : D/A value of the light emitting element (Higher value => larger amount)
bbbb : A/D value of light receiving element (difference from standard value /higher value => smaller amount)
c : Binary level of sensor SN07 (1: Block light / 0: Transmit)
CLEAR : Decrease of D/A value aaa (Decrease of light emission)
EXE : Increase of D/A value aaa (Increase of light emission)

Note) Changed emission amount by key operation is valid in this menu only. (The value will be returned to the original value when coming out of the menu.) Please use this menu for checking the sensor status when analyzing the trouble etc.

21. Ribbon Sensor Automatic Adjustment Display (Sensor Check >>)
【SN07 Adj [EXE]】Execution of automatic adjustment of ribbon mark detection sensor
CLEAR : No function
EXE : Execute automatic adjustment

Note) Pull out the ribbon cassette from the printer before execution.
Note) When sensor or main PCB is exchanged, execute this menu without fail.
Note) Check the result of automatic adjustment on the “Ribbon Sensor Analog Display Manu”.
【Actuator(Individual actuator operation related menu)】
Used for checking each actuator when analyzing troubles.

Note) Remove all remaining cards from the printer in advance. It may cause a trouble of the printer.。

22. Card Feeding at Card Feeder Menu (Actuator >> PM1:Card Feed >>)
【PM1 Feed [EXE]】Drives card feed roller
【PM1 Eject [EXE]】Drives card eject roller
CLEAR : Interruption
EXE : Start operation (Drives for set time period)

23. Path Change Actuation Menu (Actuator >> PM2:P.Change >>)
【PM2 Entry [EXE]】Move path change to entry position(Horizontal).
【PM2 Eject [EXE]】Move path change to eject position(Right down).
CLEAR : Interruption
EXE : Start operation (Move to designated position)

24. Printing Part Card Transport Menu (Actuator >> PM3:Card Move >>)
【PM3 Forward[EXE]】Drives card transport roller to transport direction
【PM1 Reverse[EXE]】Drives card transport roller to reverse direction
CLEAR : Interruption
EXE : Start operation (Drives for set time period)

25. Print Head Up/Down Menu (Actuator >> DM1:Head >>)
【DM1 Home [EXE]】Move print head to home position (Up)
【DM1 Down [EXE]】Move print head to print position (Down)
CLEAR : Interruption
EXE : Start operation (Move to designated position)

26. Ink Ribbon Transport Menu (Actuator >> DM2:Ribbon >>)
【DM2 Fast [EXE]】High speed transport of ink ribbon
【DM2 Slow [EXE]】Low speed transport of ink ribbon
CLEAR : Interruption
EXE : Start operation (Transport a set amount)

27. Cleaning Roller Up/Down Menu (Actuator >> SOL:Cleaning >>)
【SOL ON/OFF [EXE]】Up/Down the cleaning roller
CLEAR : Interruption
EXE : Start operation (Up: Home position, Down: Cleaning position)

28. Card Transport Designation Menu (Actuator >> Card Pass >>)
【Action XXXXXXX】Selection of card transport pattern
EXIT-1 : Transport card from card feeder to card ejection 1
EXIT-2 : Transport card from card feeder to card ejection 2
CLEAR : No function
EXE : Selection of operation pattern

29. Frequency of Card Transport Action Setting Menu (Actuator >> Card Pass >>)
【Count XXX】Set frequency of card transport
CLEAR : Decrease of frequency (Lower limit 1)
EXE : Increase of frequency (Upper limit 100)

30. Card Transport Execution Menu (Actuator >> Card Pass >>)
【Card Pass [EXE]】Execution of card transportation
CLEAR : Interruption of the action/Release printer error (when error only)
EXE : Start of operation
【Encoder Check（Magnetic encoder related menu）】
The menu is used to check operation of magnetic encoder.

31. Magnetic Encoder Writing Execution Menu (Encoder Check >>)
【ISO Track1 [EXE]】Write data on ISO Track 1
【ISO Track2 [EXE]】Write data on ISO Track 2
【ISO Track3 [EXE]】Write data on ISO Track 3
【JIS2 [EXE]】Write data on JIS II
CLEAR : Release printer error (when error only)
EXE : Start operation

Write the data on designated track.
According to the specification of connected magnetic unit (ISO/JIS II), menu of corresponding track is displayed.

Writing data are as following:
At the end of the character string (********), total number of the issued cards is displayed in ASCII code.
Blank (space) code is recorded for ' _ ' of the character string.

【ISO Track1】
ISO_TRACK_1_ENCODE_TEST._CARD_PRINTER_PRC-101_TOTAL NO._____ ********
【ISO Track2】12345678901234567890123456789********
【ISO Track3】
1234567890123456789012345678901234567890123456789012345678901234567890123456********
【JIS II】 JIS2_ｴﾝｺｰﾄﾞﾃｽﾄ._Card_Printer_PRC-101_TOTAL NO. =********
【Custom Setup(Printer custom set up related menu)】
This menu is used for setting the printer for special application.

32. Memory Mode Activation Menu (Custom Setup >>)
【Mem Select XXX】Setting memory mode
CLEAR : No function
EXE : Switching of OFF (Not effective: Default) / ON (Effective)

This menu is used to designate the control method (memory mode) of the print data which is received from the PC.
Select OFF if attached driver is used.
If you are using the driver for old models and, at the same time, the driver is supporting old memory mode only, switch this setting to ON and select the memory mode in "Memory Mode Selection Menu".

33. Memory Mode Setting Menu (Custom Setup >>)
【Mem Mode XXXXXXX】Setting memory mode
CLEAR : No function
EXE : Switching memory mode

Designate the control method (memory Mode) of the print data which is received form PC.
This menu is displayed only when the "Memory Mode Activation Menu" is switched to ON. Select the proper memory mode according to the driver.

34. Resin Black Correction Activation Menu (Custom Setup >>)
【Text Correct XXX】Setting the resin black correction
CLEAR : No function
EXE : Switching of ON (Effective: Default) / OFF (Not effective)

If characters are printed on the color image, the character tends to be printed thicker as compared to direct printing on the card surface. PRC-101 printer is designed to reduce the print energy for printing the resin characters in the area where the resin black is overlay printed on the color image to correct the thickness of characters to make it uniform. However, there are cases in which the correction may affect adversely, such as to print characters on the stripes or geometric patterns. In such case, set this menu to OFF.

35. USB-ID Setting Menu (Custom Setup >> Interface >>)
【USB ID X】Setting of device identification number
CLEAR : Decrement of USB ID (Lower limit 0 (Default) / Loop to upper limit)
EXE : Increment of USB ID (Upper limit 7 / Loop to lower limit)

Set the ID number to each printer for recognition when connecting multiple printers to a PC. Do not set the same number to plural numbers of printers.
If only one printer is used, this setting is not necessary.

36. USB Class Information Setting Menu (Custom Setup >> Interface >>)
【Class XXXXXXXX】Setting of USB class information
CLEAR : No function
EXE : Switching of class information (PRINTER(Default)/VENDER)

This is the information to identify the class of USB device which is defined by the USB specification.
Set this setting to PRINTER if the included driver is used. (No setting operation is necessary because this is default factory setting.) If driver for old model is used, set this to VENDER. Reboot of the printer is necessary to activate this setting.
【Error Display (Error history related menu)】
Display the history of error that has occurred to the printer in the past.
Maximum 99 errors can be memorized in the printer. If error exceeds 99, the older errors will be overwritten in order. Total number of errors are counted and memorized at occurrence of every 10 errors.

37. Error Occurrence Rate Display menu Error Display >>)
【Rate aa/bbbbbbb】Display of error rate
aa : Number of errors that occurred in the past
bbbbbbb : Number of the cards (Total count) that has been printed till the above error (max. 99) occurred.
CLEAR : No function
EXE : No function

38. Order of Error Occurrence Display Menu (Error Display >>)
【Histry aa(bb) cc】Display of type of error and order of occurrence
【Histry C:ddddddd】Display total count at the occurrence of error (every 10)
aa : Error code (Upper 2 digits of the code at the right end of the error message)
bb : Detail code (Lower 2 digits of the code at the right end of the error message)
cc : Serial number (Oldest error is 01 and increment in order)
ddddddd : Total count at the time of error occurrence (Indicator of error frequency)
CLEAR : Switching of error display (Decrease dd : New =>Old)
EXE : Switching of error display (Increase dd : Old =>New)

39. Error Code Display Menu (Error Display >>)
【Err.aa(--) yy/xx】Display of [Number of occurrence/Total error] for each error code
【Add.aa(bb) zz/yy】Display of [Number of occurrence/Total number of error code] for each detail code
aa : Error code (Upper 2 digits of the code at the right end of error message)
bb : Detail code (Lower 2 digits of the code at the right end of error message)
xx : Number of the errors recorded in the printer (max. 99)
yy : Number of occurrence of displayed error code (aa)
zz : Number of occurrence of displayed detail code (bb)
CLEAR : Switching of display type (Error code / detail code)
EXE : Switching of error display (aa or bb in increment / loop)

40. Error History Initialization Menu (Error Display >>)
【Log Reset [C+E]】Clear the recorded errors information in the printer
CLEAR : Clear error information (Press with EXE key)
EXE : Clear error information (Press with CLEAR key)

MEMO

□ **Overview**

In this paragraph, method of replacement and various adjustments are explained which are necessary when replacing thermal head or main PCB.

□ **Replacement of Main PCB**

Steps to replace main PCB is described below.

Setting of various items of the printer is memorized in the nonvolatile memory on the main PCB. Reading and recording these settings before the replacement work will make the setting work of items after the replacement easier. For the details, please refer to the next item (Various Setting after Replacement of Main PCB) below.

1. Turn OFF the power switch and remove USB cable and power cord from the printer.

2. Remove the parts in the order of Card Eject Exit Cover, Rear Cover, Operation Panel Cover.

3. Disconnect all connectors connected to the main PCB and remove the main PCB.

4. Mount new main PCB and connect all connectors.

5. Assemble the parts in the order of Operation Panel Cover, Rear Cover, Card Eject Exit Cover.

6. Connect the power cord and turn ON the power switch and set various settings of the printer which have been memorized in the printer.

□**Various Settings after Replacement of Main PCB**

1. Download of files

【Download of main firmware】

Obtain the latest firmware from WEB site etc and download to the printer.

【Download resistance value of the head】

Obtain the resistance value of thermal head which is mounted on the printer and download to the printer.

Serial number is printed on each individual thermal head. Check this serial number and obtain the resistance value data for the same serial number.

2. Setting the items of User Mode

Set the items to be set at the User Mode.

各項目の詳細は『PR-C101／PR-C101M 操作ガイド』を参照してください。

3. Setting of items of Service Mode and Adjustment
Set and adjust the items at Service Mode.
For the details of each item, refer to “2. Operation of the Operation Panel”.

◇Applied energy adjustment
◇Preheating energy adjustment
◇Print position (Horizontal) adjustment
◇Print position (Vertical) adjustment
◇Print position shift of image and characters adjustment
◇Density uniformity adjustment
◇Card trailing edge print setting
◇Card trailing edge position setting
◇Ribbon start position adjustment
◇Path change angle adjustment
◇LCD adjustment
◇Ribbon sensor automatic adjustment
◇Memory mode activation
◇Memory mode setting
◇Resin black correction activation
◇USB-ID setting
◇USB class information setting

MEMO

□ **Replacement of Print Head**

Caution

Do not touch the edge of the print head. It may cause a breakage of head or defective printing.
When handling the print head, hold it by the frame.

Following is the steps to replace the print head.

1. Turn OFF the power switch and disconnect USB cable and power cord etc from the printer.

2. Open the front access cover, remove upper two screws fixing the top cover and remove the top cover.

3. Pull up the tip of the Ink Ribbon Cartridge Set Lever and pull toward you. Turn the Ink Ribbon Cartridge Set Lever to the left and push in. Then, pull out the Print Head upward.

   See Fig 1

4. Pull off the cable from the Print Head and insert new Print Head.

5. Remove the earth lead which is connecting the Print Head and the printer body, and fix the a ground wire to the new Print Head. See Fig 2

6. Insert the Print Head to the printer and push down the Ink Ribbon Cartridge Set Lever. See Fig 2

7. Fix the ground wire to the printer frame.

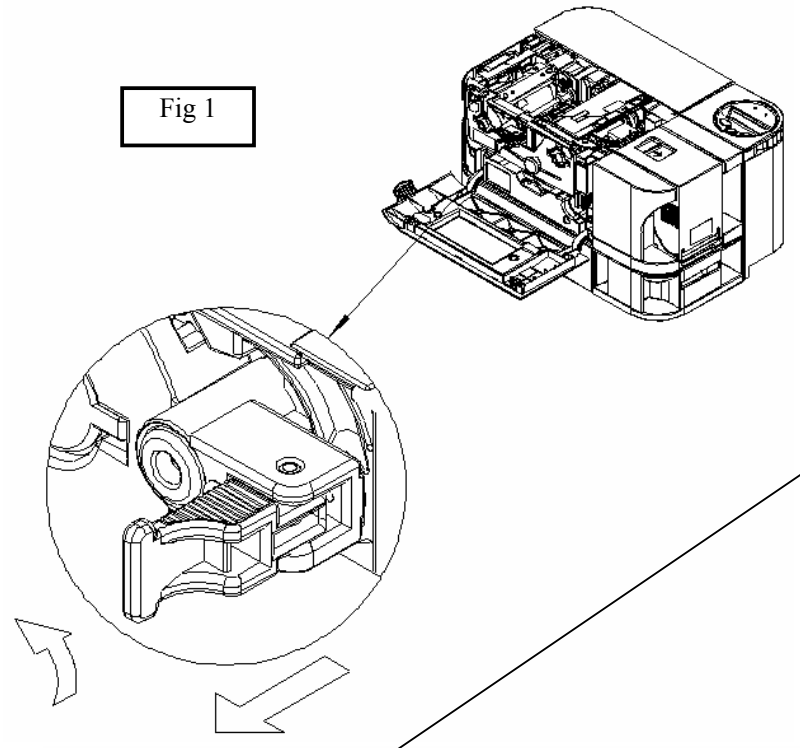
8. Attach the top cover.

9. Connect the power cord and turn ON the power switch. Download the resistance-value data which is supplied with the Print Head.

10. Set the following settings in Service Mode as needed.
    Regarding the details of each items, please read “2. Operation of Operation Panel”.

    ◇Applied energy adjustment
    ◇Print position (horizontal) adjustment
    ◇Print position (vertical) adjustment
    ◇Density uniformity adjustment

Fig 1



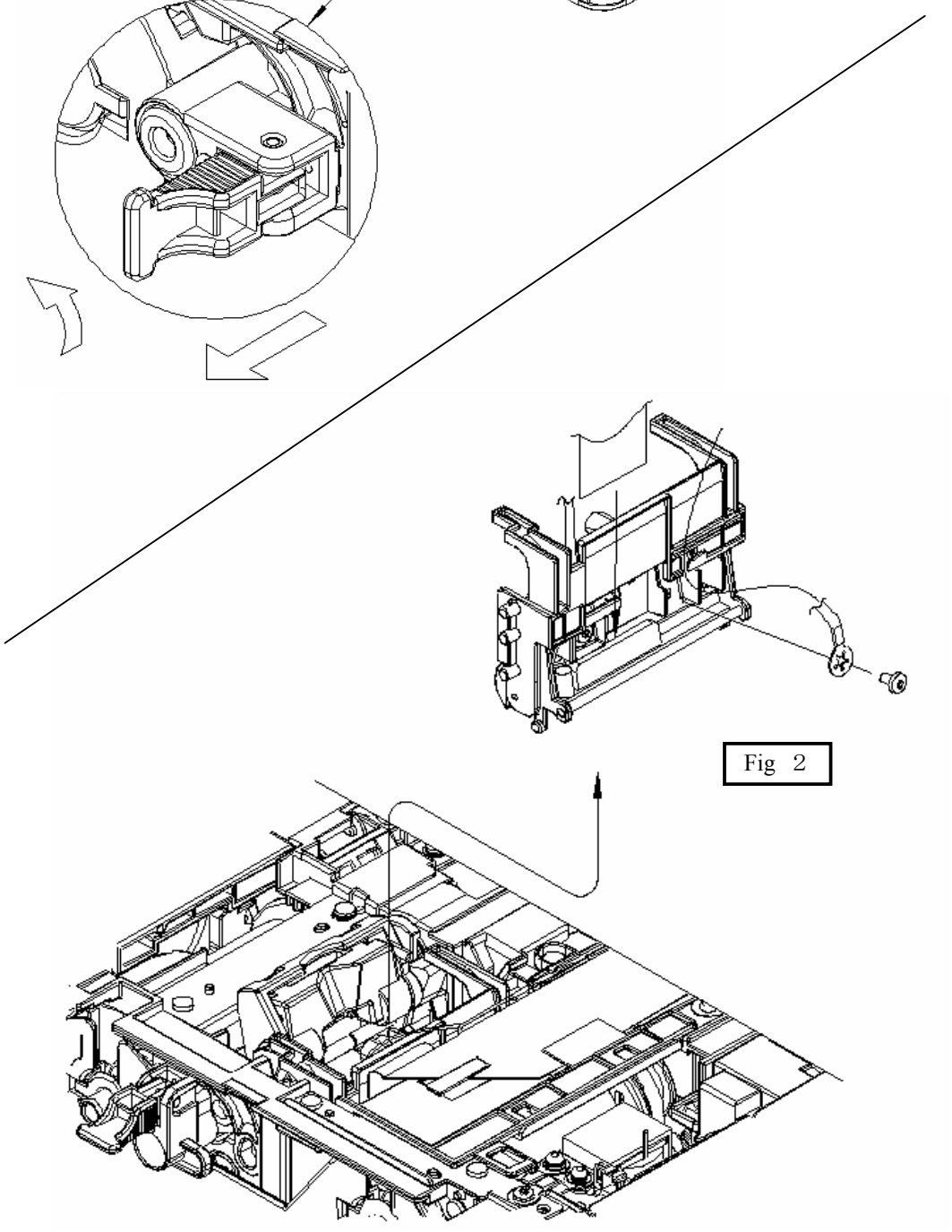


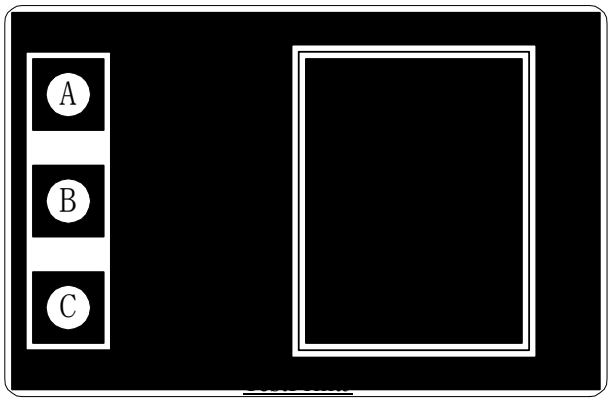
Fig 2

□ **Applied Energy Adjustment**

Adjust the print density with Applied Energy Adjustment
For the operation, refer to “Operation of Operation Panel”.

Step 1. Print the test pattern with Adjustment>>Density>>TestPrintJ.
Step 2. Change the setting value of Adjustment>>Density>>OD Color so that there is no color drop in the image and average density of A, B, C, below becomes 1.75±0.025.
Step 3. Print test pattern again with Adjustment>>Density>>TestPrintJ and repeat the adjustment if necessary.

Note 1) For the comparison of density, use instrument such as Density Meter. If instrument is not available, use sample card and compare visually.
Note 2) Larger setting value of color makes image density heavier and smaller value makes it lighter.
Note 3) When replacing the thermal head, retain the old settings as is, and start adjustment from the retained value.



□ **Print Position Adjustment**

Adjust horizontal and vertical print position

For the operation, refer to "2. Operation of Operation Panel".

Step 1. Print test pattern with Adjustment>>Position>>TestPrintH.

Step 2. Adjust the values of Adjustment>>Position>>Horizontal and Adjustment>>Position>>Vertical so that the dimensions h, v of the test pattern (dimension from the edge of the card to the frame of the image) become 0.5±0.2mm as shown in the fig below.

Step 3. Print the test pattern with Adjustment>>Position>>TestPrintH again and repeat adjustment if necessary.

Note 1) If dimensions h, v are small, increase the value and if it is large, decrease the value.

Note 2) Setting value can be obtained by the formula below.

H(new) = H(old) + (0.5 – h) / 12

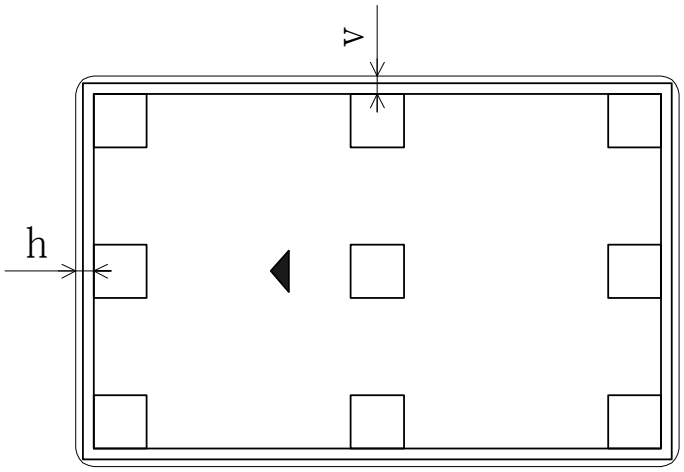
H(new) : New set value of Horizontal

H(old) : Present value of Horizontal

h : Measured value of Horizontal (mm)

Value for vertical can be obtained by same formula.

Note 3) When replacing thermal head, start adjustment from the retained value of the old head.



TestPrintH

<mm – dot conversion table>

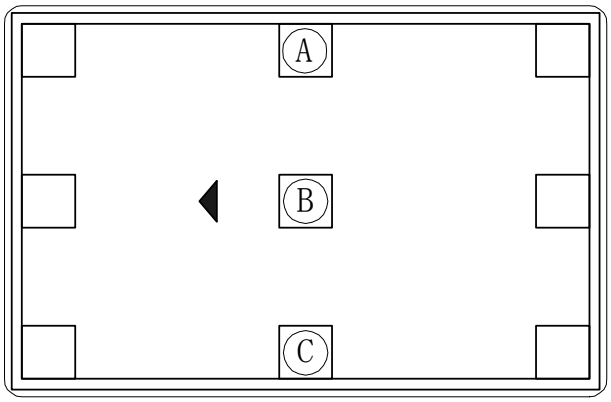
Thermal head has the resolution of 300dpi. Print position adjustment is made in the unit of the dot.
Measured dimension can be converted into the dots by the table below.

New setting value=Present value + (0.5 – dimension from the card edge)
Convert into dots by the table below.
If dimension is (-), the dot is also (-).

Dot	Dimension(mm)	Dot	Dimension(mm)
0	0.00	26	2.20
1	0.08	27	2.29
2	0.17	28	2.37
3	0.25	29	2.46
4	0.34	30	2.54
5	0.42	31	2.62
6	0.51	32	2.71
7	0.59	33	2.79
8	0.68	34	2.88
9	0.76	35	2.96
10	0.85	36	3.05
11	0.93	37	3.13
12	1.02	38	3.22
13	1.10	39	3.30
14	1.19	40	3.39
15	1.27	41	3.47
16	1.35	42	3.56
17	1.44	43	3.64
18	1.52	44	3.73
19	1.61	45	3.81
20	1.69	46	3.89
21	1.78	47	3.98
22	1.86	48	4.06
23	1.95	49	4.15
24	2.03	50	4.23
25	2.12		

□ **Print Uniformity Adjustment**

Step 1. Print test pattern with Adjustment>>Uniformity>>TestPrintH.
Step 2. Compare the density of area A, B, C and take the area where the density is lowest as a standard. Decrease the value of other two areas to the same density as standard.
Step 3. Print test pattern again with Adjustment>>Uniformity>>TestPrintH and repeat adjustment if necessary.
Note 1) Use instrument such as density meter for comparison of density.
If instrument is not available, use sample card and compare visually.
Note 2) Area A, B, C corresponds with the following, and the density becomes lower by decreasing the set value.
A : Adjustment >> Uniformity >> Upper
B : Adjustment >> Uniformity >> Center
C : Adjustment >> Uniformity >> Lower
Note 3) When replacing thermal head, start adjustment from the retained values of old setting.



TestPrintH

MEMO

□**Explanation of Trouble shooting by LCD display**

If trouble is detected, error LED on the operation panel lights up and type of trouble is displayed on LCD.
This paragraph describes the cause of trouble and the method of recovery based on the display on the LCD.

Types of errors are controlled by combination of 2 digits of error code (Er) and 2 digits of detail code (Ad).
On the LCD, from the left to the right, error message and 4 digits of numerals (2 digits of error code and 2 digits of detail code) are displayed.

Example of LCD Display	Description
Cover Open 10-01	Error code (Er) : 10 Detail code (Ad) : 01

In the explanation in this paragraph, error code and detail code on the error message may be indicated as wildcard "* *".

- User is required to perform recovery operation according to the description of error message on the LCD. Most of the error can be recovered by user. However, if it is impossible to recover to normal condition by user, or error occurs repeatedly, service call is necessary.
- When service call is received from user, ask the details of symptom, and confirm error code and detail code.

□ **LCD Display and Recovery Method**

『 Display of normal condition 』

Following shows the LCD display in the normal condition of the printer.
Error LED does not light up to indicate the printer is normal. Error code and detail code are not shown.

LCD 表示	内　　容
Ready to print.	Printer is in waiting mode. Possible to transmit data from host computer and start printing.
Initializing..	Printer is being initialized.
Now Printing..	Printer is in printing operation. Data for next printing may be transmitted.
Ready to D.Load	Safety mode is activated due to main program damage. Download the main program. For downloading, refer to paragraph 3.
Data Writing..	Program is being downloaded.
Now Cleaning..	Roller cleaning operation is being executed.

『 Display to ask manual recovery operation 』

Display the manual operation to recover from printer error.
After the printer stops by error, the printer will perform recovery operation by pressing [Clear-key] if condition of error recovery is satisfied. If not satisfied, one of the following messages will be shown.

LCD Display	Description	Recovery method
Push CLEAR Key	Error recovery condition is satisfied.	Press [Clear_Key].
Check Ink Ribbon	Check condition of the Ink Ribbon.	Set the ribbon correctly, close the front access cover and press [Clear_Key].
Card Empty	No card in the card cassette.	Set cards in the card cassette and press [Clear_Key].
Cover Open	Front access cover is open.	Close front access cover and press [Clear_Key].
Remove Card	Un-ejected card is staying in the printer.	Remove the remaining card manually from the printer following the operation guide. Turn ON the power after the operation.
Load ResistData	No resistance data.	Download the corresponding resistance data of the serial No. of the print head. For downloading, refer to para 7.
Can not Recover	Un-recoverable error occurred.	Turn OFF and ON the power switch.

『 Error display at ordinary use 』

These are the errors that occur in the ordinary use of the printer. These errors are easily recovered by user.
However, these errors may occur due to malfunction of the means of detection (sensor etc). In such case, it is necessary to check and repair by service engineer.

LCD Display	Description	Recovery method
Card Empty 11-01	Card is empty	Set cards at card feeder and press [Clear_Key]
Cover Open 10-01	Front access cover is open.	Check that the front access cover is closed and press [Clear_Key]
Rbn Empty 20-**	Ink ribbon is finished.	Set new ink ribbon cassette and press [Clear_Key].

『 Card jam related error display 』

In case the card is not transported according to the sequence, card jam error occurs.
Basic recovery methods are described here for the card jam errors. There may be the case that the card itself is causing the error. In such case, check whether there is any problem with the card such as card specification (dimension and thickness), curling, surface finishing (special finish such as anti static agent etc).

LCD Display	Description	Recovery method
Feed Miss 30-**	Card was not fed from the card cassette normally.	Check that the cards are correctly set in the card cassette and press [Clear_Key].
Card JAM. 31-** 41-** 42-** 43-** 44-**	Card was not transported normally.	Press [Clear_Key]. If the card is not ejected automatically, remove the card in the printer manually.
Card JAM. 4D-** 4F-**	More than one cards exist in the printer.	Remove the cards in the printer manually and press [Clear_Key].
Card JAM. 4E-**	Double feed of card occurred.	Remove the double fed cards manually and press [Clear_Key].

『 Ink ribbon related error display 』

Recovery methods for ink ribbon related errors are described below.

LCD Display	Description	Recovery method
Rbn Wind 21-**	Abnormal wind up of ink ribbon	Check breakage of ribbon and insert ink ribbon cartridge. Close front access cover and press [Clear_Key].
Rbn Type 22-** 23-** 27-10	Ribbon is not same as the ribbon type recognized by printer.	Pull out the ribbon cartridge. Check if there is breakage of ribbon or IC, and insert the cartridge. Close front access cover and press [Clear_Key].

『 Magnetic encode error display 』()

Recovery method for magnetic encode error is described below.

LCD Display	Description	Recovery method
MG Write 58-** MG Read 59-**	Failed to write or read magnetic data.	Press [Clear_Key]

『 Display of error by printer system 』

Errors caused by system factor of the printer are shown below. These errors must be checked and repaired by service engineer.

LCD Display	Description	Recovery method
Service C. **-**	Unrecoverable error occurred in the printer.	Turn OFF and ON the power switch.

□ **Checking and repairing of hardware related troubles**

If troubles are unrecoverable by user, service engineer is required to check and repair in the following steps.

<Caution> Read before trouble shooting without fail.

1. Each error is shown with error message, error code (Er) and detail code (Ad).

   To check the type of error, search by the combination of error message and error code.

2. When performing the following work, do not fail to turn OFF the power switch and pull off the cord from wall outlet.

   - Remove housing
   - Replace print head
   - Check connection of harness
   - Replace parts such as PCB, sensor, motor etc.
   - Mount/dismount magnetic encoder to/from the printer

3. Type of card jam error is detected by the sensors attached on the card transport path and categorized as following.

   - Un arrival jam:Card is not detected within specified time while the card is transported.
   - Clog jam: Card is stopped and stays at where it should not stop.
   - Double feed jam: Card double feed is detected.
   - Plural card jam: Multiple cards are detected in the printer.

4. If ribbon position control error (Rbn Type **-**) occurs frequently, improper adjustment of ribbon sensor sensitivity is considered. Readjust the ribbon sensor sensitivity following paragraph 3, “Operation of Operation Panel”.

5. When checking various actuators, perform the work after checking that no card exists in the printer. It may cause other trouble.

6. Card transport roller cleaning must be performed following the Operation Guide.

□ **List of error messages**

『 Error code 10h ~ 2Fh 』 Cover open / Card empty / Ribbon related / Up・Down of print head / Path switching

Error display	Err.	Add.	Description
Cover Open	10	01	Front access cover open
Card Empty	11	01	Card empty
Rbn Empty	20	01	End mark detected (when printing)
		02	End mark detected (when initializing)
Rbn Wind	21	*3, *4	Abnormal clock of ribbon take up spool
		*5	Abnormal clock of ribbon feed spool
	24	**	Abnormal ribbon insert sensor
Rbn Type	22	01	Abnormal unique/end mark position
		02	Abnormal black panel
		03, 04	Abnormal panel space (short)
		05	Abnormal panel space (long)
		06	Unique mark not detected (front of yellow panel)
		07	Unique mark not detected (front of cyan panel)
		08	Abnormal cycle of unique mark
	23	**	Ribbon transport time out
	27	10	Ribbon type not set
Service C.	28	**	Abnormal up/down of thermal head
	2F	**	Abnormal move of path switch part

『 Error Code 30h ~ 4Fh 』 Card jam related errors

Error display	Err.	Add.	Description
Feed Miss	30	**	Card feed failure
Card JAM.	31	**	Card jam at card feeder
	40	**	Card transport failure jam in printing part
	41	**	Card transport failure jam in printing part
	42	**	Card transport failure jam in printing part
	43	**	Card transport failure jam in printing part
	44	**	Card transport failure jam in printing part
	4D	**	Card transport failure jam in printing part (ejection failure)
	4E	**	Card transport failure jam in printing part (ejection failure, double transport)
	4F	**	Abnormal card position control in card control part

『 Error code 50h ~ 5Eh 』 Magnetic encoder related errors

Error display	Err.	Add.	Description
Service C.	50	01	Program error in communication of magnetic encoder
	50	02,03	Communication error with magnetic encoder
	51	11	Error of un-arrival to target position of magnetic head
		12	Magnetic head clock not detected
		13	Communication error in control of transport speed to magnetic head
	52	**	Magnetic encoder parameter set error
MG Write	58	**	Magnetic encoder writing error
MG Read	59	**	Magnetic encoder reading error

『 Error coder 60h ~ 6Fh 』 Hardware related errors (Main program process only)

Error display	Err.	Add.	Description
Service C.	60	**	DSP writing time out
	61	**	DSP reading time out
	62	**	Abnormal DSP sequence (NAK response)
	63	**	Abnormal DSP sequence (response other than ACK,NAK)
	64	**	DMA transmit complete time out (line 1)
	65	**	DMA transmit complete time out (line 2)
	66	**	Abnormal test pattern format
	67	01	Power source fan alarm signal detected
		02	Thermal head fan alarm signal detected
		03	Exhaust fan alarm signal detected
	68	01	Ribbon sensor adjust error (rough: output overflow)
		02	Ribbon sensor adjust error (fine: output overflow)
		03	Ribbon sensor adjust error (fine: output underflow)
	69	01	Thermal head thermistor temperature low
		02	Thermal head thermistor temperature high
		11	Cabinet thermistor temperature low
		12	Cabinet thermistor temperature high
	6A	01	Abnormal communication of ink ribbon cartridge IC
		02	Abnormal verification of ink ribbon cartridge IC (data)
		03	Abnormal verification of ink ribbon cartridge IC (address)
		04	Ink ribbon cartridge IC program authentication failure
		11	Abnormal format of ink ribbon cartridge IC
	6D	01	DSP program not exist
		02	Abnormal format of DSP program
	6E	01	Thermal head resistance data not exist
		02	Abnormal format of thermal head resistance data

『 Error code 70h ~ 7Fh 』 Design related errors

Error display	Err.	Add.	Description
Service C.	70	**	Card feed part/card eject part 1 motion time out
	72	**	Print part motion time out
	74	**	Card feed card/card eject part 1 motion program error
	76	**	Print part program construction error
	77	**	Magnetic control part program construction error
	78	**	Card ejection part 2 program construction error
	79	**	Image processing part program construction error
	7A	**	Card processing part program error
	7D	01	Surface test pattern designation error (Designation of undefined pattern)
		02	Back side test pattern designation error (Designation of undefined pattern)
	7E	**	DSP process request error (Designation of undefined request)
	7F	**	Watchdog timer time expiration error (elapse of 200msec)

『 Error code 80h ~ AFh 』 USB communication related errors
(Omitted: Described in command specification)

『 Error code B0h ~ BFh 』 Command related errors while downloading

Error display	Err.	Add.	Description
Download	B0	**	Disaccord of rank information of module
	B1	**	Improper parameter size of command
	B2	**	Improper address control of module
	B3	**	Disaccord of SUM value of module
	B4	**	Disaccord of LRC value of module
	B5	**	Disaccord of number of block transfer of module
	B6	**	Disaccord of control name of module
	B7	**	Improper index number of block transfer
	B8	**	Improper address control of block transfer
	B9	**	Disaccord of SUM value of block transfer
	BF	01	Download interrupt command (USB command) is received

『 Error code C0h ~ C7h 』 Hardware related (specific process for base program)

Error display	Err.	Add.	Description
Service C.	C0	01,02	フラッシュメモリのセクタ消去タイムアウト（HW 検知）
		03,04	フラッシュメモリのセクタ消去タイムアウト（FW 検知）
		11~13	フラッシュメモリのデータ書込タイムアウト（HW 検知）
		14~16	フラッシュメモリのデータ書込タイムアウト（FW 検知）
		31	DRAM のデータ消去タイムアウト
		41	DRAM のデータ書込失敗（DRAM 未完了）
		51	DRAM のデータ読込失敗（DRAM 未完了）
		61,62	フラッシュメモリのアドレス管理不適切

『 Error code C8h ~ CFh 』 Hardware related
(Common process of main program/base program)

Error display	Err.	Add.	Description
Service C.	C8	01	Time out of FPGA program writing
	C9	01	Abnormal verification of EEPROM function check data
		02	Time out of EEPROM function check data writing
		03	Broken data of EEPROM
		04	Time out of EEPROM data writing
		05	Improper data format of EEPROM

『 Front access cover open 』

Cover Open Er-Ad

Er	Ad	Status of occurrence	Check/Repair method
10	01	Front access cover of the printer is open. If the error occurs in spite of the cover is closed, check the methods in the right side this table.	1. Check reaction of SN11 for open/close of the front access cover in sensor check mode. 2. If the sensor does not respond normally, check connection and conduction of harness. 3. If the harness is normal, replace the following: ・SN11 (MS1) ・PBA-MAIN

『 Card Empty 』

Card Empty Er-Ad

Er	Ad	Status of occurrence	Check/Repair method
11	01	Card is not set at card cassette. If the error occurs in spite of the card, check the method in the right side of this table.	1. Check reaction of SN1 in sensor check mode. 2. If the sensor does not react normally, check connection and conduction of harness. ASM-SENSOR1 ASM-SN1 3. In the harness is normal, replace the following: ・SN1 ・PBA-MAIN

『 Ribbon Empty 』

Rbn Empty Er-Ad

Er	Ad	Status of occurrence	Check/Repair method
20	01 02	Ribbon empty mark is detected. If the error occurs in spite of the ribbon is set normally and is not reached to ribbon empty mark, check the method in the right side of this table.	1. Adjust sensitivity of sensor SN7 in the sensor check mode. If impossible to adjust, check connection and conduction of harness. 2. If the harness connection is normal replace the following: ・SN7 (LD/PT) ・PBA-MAIN

『 Ribbon winding error 』

Rbn Wind Er-Ad

Er	Ad	Status of occurrence	Check/Repair method
21	＊3 ＊4	Winding speed of ribbon is too slow. Check whether the ribbon is set correctly. This occurs if ribbon sticks to the card. Check whether the card is incorrectly used, such as already printed card is used again. Also, card material may be the cause of trouble. If, the above is not the case, check the method in the right side of this table.	1. Check reaction of SN6 in the sensor check mode. If the sensor does not react normally, check item b below. 2a. If the sensor is normal, motor may have problem. Check connection and conduction of harness of DM2. ・ASM-DMOT 3a. If the harness is normal, replace the following: ・Ink ribbon cartridge ・DM2 ・PBA-MAIN 2b. Check connection and conduction of harness of SN6. ・ASM-SENSOR2 3b. If the harness connection is normal, replace the following: ・SN6 ・PBA-MAIN
	＊5	Ribbon feed spindle is not rotating. If the trouble occurs in spite of the ribbon is set correctly and there is no breakage, check the method in the right side of this table.	1. Check reaction of SN5 in the sensor check mode. 2. Check connection and conduction of the harness of SN5. ・ASM-SENSOR2 3. If the harness connection is normal, replace the following: ・Ink ribbon cartridge ・SN5 ・PBA-MAIN

『 Ribbon type setting error 』

Rbn Type Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
22	01 02	Ribbon type is not same as the type that printer recognized.	1. Check if the type of ribbon is same as the type shown on the operation panel. If different, IC of the ink ribbon cartridge may be broken. Replace the following: ・Ink ribbon cartridge 2. Check whether there is breakage of ribbon. 3. Adjust the sensitivity of sensor SN7 in the sensor check mode. If impossible to adjust, check connection and conduction of harness: ・SN7 (LD/PT) ・PBA-MAIN
	03 04 05	Distance of ribbon edges is different from the set ribbon.	
	06 07	Unique mark (ribbon type) was not detected.	
	08	Distance of unique mark (ribbon type) is different from the set ribbon.	
23	**	Failed to transport to target panel in the set time period.	
27	10	Ribbon type is not set. Check that the ribbon cartridge is inserted. If error occurs, check the method in the right side of this table.	1. Breakage of ink ribbon cartridge IC is considered. Replace the following: ・Ink ribbon cartridge 2. If the above replacement does not solve the problem, check connection and conduction of harness. ・ASM-CONTACT 3. If harness is normal, replace the following: ・PBA-CONTACT ・PBA-MAIN

『 Abnormal ribbon in/out 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
24	**	Insert/pull out of ribbon cartridge is not normal. Pull out the ink ribbon cartridge and insert correctly. If the error occurs in spite of the cartridge is normally inserted, check the method in the right side of this table.	1. Check reaction of SN8 in the sensor check mode. 2. Check connection and conduction of harness of SN8. ・ASM-SENSOR 3. If the connection and conduction of harness is normal, replace the following: ・Ink ribbon cartridge ・SN8 ・PBA-MAIN

『 Abnormal up/down of print head 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
28	**	Abnormal motion of path switching part	1. Check reaction of SN10 in the sensor check mode. If the sensor does not react normally, check items b. 2a. If the sensor is normal, problem with the motor is considered. Check connection and conduction of DM1 harness. ・ASM-MAIN 3a. If the harness is normal, replace the following: ・DM1 ・PBA-MAIN 2b. Check connection and conduction of SN10 harness. ・ASM-SENSOR2 3b. If the harness is normal, replace the following: ・SN10 ・PBA-MAIN

『 Abnormal motion of path switching part 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
2F	**	Abnormal motion of path switching part	1. Check reaction of SN3 in the sensor check mode. If sensor does not react normally, check items b. (2a) If sensor is normal, problem with motor is considered. Check connection and conduction of harness of PM2. ・ASM-PMOT (3a) If the connection of harness is normal, replace the following: ・PM2 ・PBA-MAIN (2b) Check connection and conduction of harness of SN3. ・ASM-SN3 ・ASM-SENSOR1 (3b) If connection of harness is normal, replace the following: ・SN3 ・PBA-MAIN

『 Card feed error at card feed part 』

Feed Miss Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
30	**	Card did not arrive at SN2.	1. Check that the card did not arrive at SN2. If the card arrives at or pass through, check items b. 2a. Check motion of PM1 in the actuator motion check mode. If moves normally, perform cleaning of card feed rollers. 3a. If it does not move at all, check connection of the harness. ・ASM-PMOT 4a. If the harness is normal, replace the following: ・PM1 ・PBA-MAIN 2b. Check reaction of SN2 in the sensor check mode. 3b. If SN2 does not react, check connection of harness. ・ASM-SENSOR3 ・ASM-SN2 4b. If connection of harness is normal, replace the following: ・SN2 (LD/DP) ・PBA-MAIN

『 Card jam error at card feed part 』

Card JAM. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
31	**	Card jam error occurred at SN2.	1. Check that the card is staying at the designated position. If the card is not at designated position, check items b. If card has arrived at cleaning roller, trouble of print card transportation motor is considered. Refer to error code 40 also. 2a. Check the action of PM1 in the actuator motion check mode. If normal, perform cleaning of card feed roller. 3a. If it does not move at all, check connection of harness. ・ASM-PMOT 4a. If the harness is normal, replace the following: ・PM1 ・PBA-MAIN 2b. Check reaction of SN2 in the sensor check mode. 3b. If SN2 does not react, check connection of harness. ・ASM-SENSOR3 ・ASM-SN2 4b. If connection of harness is normal, replace the following: ・SN2 (LD/PT) ・PBA-MAIN

『 Card jam error in printing part 』

Card JAM. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
40	**	Card jam error at SN2	1. Check that the card stays at designated position. If card is not at the designated position, check items b. 2a. After removing the staying card, check motion of PM3 in the actuator motion check mode. If it is normal, perform cleaning of card transport roller. 3a. If PM3 does not move normally, check connection and conduction of harness. ・ASM-PM3 4a. If the harness is normal, replace the following: ・PM3 ・PBA-MAIN 2b. Check reaction of SN2 in the sensor check mode. 3b. If SN2 does not react, check connection and conduction of harness. ・ASM-SENSOR3 ・ASM-SN2 4b. If harness connection is normal, replace the following: ・SN2 (LD/PT) ・PBA-MAIN
41	**	Card jam error at SN4 while card transportation	1. Check that the card stays at designated position. If there is no card, check items b. 2a. After removing the staying card, check motion of PM3 in actuator motion check mode. If it is normal, perform cleaning of card transport roller. 3a. If PM3 does not move normally, check connection and conduction of harness. ・ASM-PM3 4a. If the harness is normal, replace the following: ・PM3 ・PBA-MAIN 2b. Check reaction of SN4 in sensor check mode. 3b. If SN4 does not react, check connection and conduction of the harness. ・ASM-SENSOR3 ・ASM-SN4-7 4b. If the harness connection is normal, replace the following: ・SN4 ・PBA-MAIN
44	**	Card jam error after SN4 while card transportation	

Er	Ad	Status of occurrence	Check / Repair method
42	**	Card jam error in between SN2 – SN4 while transportation	1.Check that card is staying at the designated position. If card is not, check items b. 2a. After removing the staying card, check motion of PM3 in actuator motion check mode. If it moves normally, perform cleaning of card transport roller. 3a. If PM3 does not move normally, check connection and conduction of harness. ・ASM-PM3 4a. If harness is normal, replace the following: ・PM3 ・PBA-MAIN 2b. Check reaction of SN2/SN4 in the sensor check mode. 3b. If SN2/SN4 does not react, check connection and conduction of harness. ・ASM-SENSOR ・ASM-SN2 ・ASM-SN4-7 4b. If connection of the harness is normal, replace the following: ・SN2 (LD/PT) ・SN4 ・PBA-MAIN
43	**	Card jam error at OP_SN1 while card transport * OP_SN1 is card position sensor in magnetic encoder unit.	1. Check that a card is staying at designated position. If no card, check items b. 2a. After removing the staying card, check motion of PM3 in actuator motion check mode. If normal, perform cleaning of card transport roller. 3a. If PM3 does not move normally, check connection and conduction of the harness. ・ASM-PM3 4a. If the harness is normal, replace the following: ・PM3 ・PBA-MAIN 2b. Check reaction of OP_SN1 in sensor check mode. 3b. If OP_SN1 does not react, check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP ・ASM-MG-SN 4b. If connection of harness is normal, replace the following: ・OP_SN1 ・PBA-MG-HEAD ・PBA-MAIN

Er	Ad	Status of occurrence	Check / Repair method
4E	**	Double feed is detected (at SN2) when feeding	1. Remove staying card. 2. Check reaction of SN2 in the sensor check mode. 3. If SN2 does not react, check connection and conduction of harness. ・ASM-SENSOR3 ・ASM-SN2 4. If connection of harness is normal, replace the following: ・SN-2 (LD/PT) ・PBA-MAIN
4D 4F	**	Card is detected at SN2, SN4 while transportation. Multiple cards is considered to exist in the printer.	1. Remove staying card. 2. Check reaction of SN2, SN4 in sensor check mode. 3. If SN2/SN4 does not react, check connection and conduction of harness. ・ASM-SENSOR3 ・ASM-SN2 ・ASM-SN4-7 4. If connection of harness is normal, replace the following: ・SN2 (LD/PT) ・SN4 ・PBA-MAIN

『 Trouble in magnetic encoder 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
50	01	Program error	1. Turn power switch OFF and ON 2. If the trouble repeats, contact to the factory.
50	02 03	Communication error between printer and magnetic encoder	1. Check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP 2. If connection of harness is normal, replace the following: ・PBA-MG-HEAD ・PBA-MAIN
52	**	Parameter of the magnetic encoder is different from the parameter set by the printer.	
51	11	Error occurred when transporting the magnetic head to the target position. *OP_SN2 is magnetic head position sensor of magnetic encoder.	1. Check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP ・ASM-MG-SN 2. If connection of harness is normal, replace the following: ・OP_SN2 ・PBA-MG-HEAD ・PBA-MAIN
	12	Clock of motor for magnetic head transport was not detected.	1. Check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP ・ASM-ENCODER 2. If connection of harness is normal, replace the following: ・MOT-MG-HEAD 3. If the trouble is not solved by above replacement, replace the following: ・PBA-ENCODER ・PBA-MG-HEAD ・PBA-MAIN
51	13	Communication error has occurred between printer and magnetic encoder in the magnetic head speed control.	1. Check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M 2. If connection of harness is normal, replace the following: ・PBA-MG-HEAD ・PBA-MAIN ・ASM-MG-PWR-OP ・ASM-MG-IF-OP

『 Abnormal writ/read of magnetic encoder 』

MG Write Er-Ad

MG Read Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
58	01	Written data and read data are not same (Verify error)	1. Check whether the magnetic stripe and format of the card is correct or not. In case of ISO supporting magnetic stripe, check on the operation panel whether the setting of HICO/LOCO is same as the card. 2. Check connection and conduction of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP ・CBP-MG-HEAD 3. If harness connection is normal, replace the following: ・MG-HEAD ・PBA-MG-HEAD ・PBA-MAIN
58 59	02 03 04 05 06	Written data or read data is not correct.	
	07	Size of written data or read data is too big.	
	08 09	Size of written data or read data is too small.	

『 Printing part hardware error 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
60 61 62 63	**	Communication of DSP and CPU ended abnormally.	1. Download the main program. 2. If the error repeats, replace the following: ・PBA-MAIN
64 65	**	Time out of DMA transfer has occurred.	Replace the following: ・PBA-MAIN
66	**	Failed to generate test pattern.	Please contact the factory.
67	01	Abnormal operation of power source fan was detected.	1. Check connection and conduction of harness. ・ASM-FAN 2. If connection of harness is normal, replace the following: ・FAN1 ・PBA-MAIN
	02	Abnormal operation of print head fan was detected.	1. Check connection and conduction of harness. ・ASM-FAN 2. If connection of harness is normal, replace the following: ・FAN2 ・PBA-MAIN
	03	Abnormal operation of air intake fan was detected.	1. Check connection and conduction of harness. ・ASM-FAN 2. If connection of harness is normal, replace the following: ・FAN3 ・PBA-MAIN

Er	Ad	Status of occurrence	Check / Repair method
68	01 02 03	Failed to adjust sensitivity of ribbon position sensor SN7.	1.Check connection and conduction of harness. ・ASM-SENSOR3 ・ASM-SN4-7 2. If connection of harness is normal, replace the following: ・SN7 (LD/PT) ・PBA-MAIN
69	01 02	Print head temperature sensor detected temperature of out of control range.	1. Check connection and conduction of harness. ・CBP HEAD 2. If connection of harness is normal, replace the following: ・Print head ・PBA-MAIN
	11 12	Printer ambient temperature sensor detected temperature of out of control range.	1. Check that the temperature of the printer ambient is within the range specified in the Operation Guide. 2. If the temperature is within the range, check connection and conduction of harness. ・ASM-THRM 3. If connection of harness is normal, replace the following: ・PBA-MAIN
6A	01 02 03 04	Failed to communicate with ribbon cartridge IC.	1. Check fitting of ribbon cartridge. 2. Check connection and conduction of harness. ・ASM-CONTACT 3. If connection of harness is normal, replace the following: ・PBA-CONTACT ・PBA-MAIN
	11	Incorrect format of ribbon cartridge IC.	Please contact factory.
6D	01	DPS information is not registered.	1. Download the main program. 2. If error repeats, replace the following: ・PBA-MAIN
	02	DPS information is broken.	
6E	01	Resistance information is not registered.	1. Download resistance data of the same serial number as the print head. 2. If error repeats, replace the following: ・PBA-MAIN
	02	Resistance information is broken.	

『 Firmware control error 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
70 72 74 76 77 78 79 7A 7D 7E 7F	**	Program error occurred.	Please contact the factory.

『 Download related errors 』

Download Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
B0 | BF	**	Failed to download.	1. Reboot PC and printer, and try to download again. 2. If error repeats, replace the following: ・PBA-MAIN

『 Other errors of hardware 』

Service C. Er-Ad

Er	Ad	Status of occurrence	Check / Repair method
C0	**	Error was detected while writing the downloaded program.	1. Turn OFF and ON the power switch. 2. If error repeats, main PCB is considered to have problem. Replace the main PCB. ・PBA-MAIN
C8	01	Error was detected while writing the FPGA program.	
C9	01 | 05	Error was detected while accessing the EEPROM.	

□ **Trouble which can not be checked on LCD**

The following describes the method to recover from the trouble which can not be checked on LCD.

<Caution> Do not fail to read before performing troubleshooting.

1. When performing the following, turn OFF the power switch and pull out the cord without fail.
   - Replace print head
   - Remove front access cover or printer housing
   - Check connection of harness
   - Replace electric parts such as PCB, sensor, motor
   - Mount or dismount magnetic encoder unit to and from the printer

Phenomenon	Status of occurrence	Check / Repair method
After SW is turned ON, nothing is shown on LCD of operation panel. LED does not light.	AC current is not supplied.	1. Check whether the specified voltage(AC voltage) is supplied from wall outlet. 2. Check whether the power cable is correctly connected.
	Defective connection of harness	Check connection of harness. ・ASM-AC-POWER ・ASM-DC-POWER ・ASM-OPEPANE
	Defect of PCB Defect of Operation panel	Replace the following and check the operation. ・PBA-MAIN ・PBA-OPEPANE
Following error occur when printing image or characters: ・White line in ・Longitudinal direction. ・Longitudinal color unevenness.	Defect of print head	1. Turn OFF the power switch, replace the following, and check again. ・Print head 2. Download the print head resistance data of the new print head to the printer. ・Print head resistance data
Image and characters are not printed at all.	Defective connection of harness	1. Check connection of harness. ・CBP-HEAD
	Defect of print head	1. Turn OFF the power, replace the following and check again. ・Print head Download the resistance data of the new print head to the printer. ・Print head resistance data
	Defect of PCB Defect of power unit	1. Turn OFF the power, replace the following and check again. ・PBA-MAIN ・Power unit
Printer does not react to the data transmitted from host computer.	Defective connection of cable.	1. Check connection of interface cable.
	Defect of PCB	1. Turn OFF the power, replace the following and check again. ・PBA-MAIN

Phenomenon	Status of occurrence	Check / Repair method
Magnetic encoder is not recognized.	Defective connection of harness or defective PCB	1. Turn OFF the power and check connection of harness. ・ASM-MG-PWR-M ・ASM-MG-IF-M ・ASM-MG-PWR-OP ・ASM-MG-IF-OP 2. Turn OFF the power, replace the following and check again. ・PBA-MG-HEAD ・PBA-MAIN

MEMO